AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A <u>method of performing simulation of at least a portion of an</u> <u>integrated circuit, the method comprising</u> ~~computer system for finding a worst case~~ ~~aggressor set of a victim net based on a plurality of logically exclusive sets, the~~ ~~computer system comprising instructions for~~:

    <u>selecting a victim net;</u>

    <u>determining a first set of aggressor nets of the victim net;</u>

    <u>determining a plurality of logically exclusive sets of nets of the at least the</u> <u>portion of the integrated circuit, wherein at most one net in each of the</u> <u>plurality of logically exclusive sets switches at a given time;</u>

    <u>determining a worst case aggressor set of the victim net using the first set and</u> <u>the plurality of logically exclusive sets; and</u>

    <u>performing noise analysis of the victim net based on the worst case aggressor</u> <u>set</u>

    ~~forming a first set, wherein the first set comprises an aggressor net of the victim~~ ~~net;~~

    ~~using the first set and a plurality of logically exclusive sets to formulate a~~ ~~problem; and~~

    ~~solving the problem to determine a worst case aggressor net of the victim net~~ ~~wherein the worst case aggressor set comprises the worst case aggressor~~ ~~net.~~

2. (Currently Amended) The <u>method</u> ~~computer system~~ of claim 1, wherein the plurality of logically exclusive sets comprises a mutually exclusive set, and wherein the mutually exclusive set comprises a signal net.

3. (Currently Amended) The <u>method</u> ~~computer system~~ of claim 1, wherein [[the]] aggressor [[net]] <u>nets</u> in the first set <u>have</u> [[has a]] corresponding ~~weight~~ <u>weights</u>.

4. (Cancelled)

5. (Currently Amended) The <u>method</u> ~~computer system~~ of claim 1, further comprising ~~instructions for~~:

    > <u>determining</u> ~~forming~~ a second set <u>of aggressor nets,</u> wherein the second set comprises an aggressor net that is in the first set and that is part of the plurality of logically exclusive sets.

6. (Currently Amended) The <u>method</u> ~~computer system~~ of claim 5, further comprising ~~instructions for~~:

    > <u>determining</u> ~~forming~~ a third set <u>of aggressor nets,</u> wherein the third set comprises an aggressor net that is in the first set but is not part of the second set.

7. (Currently Amended) The <u>method</u> ~~computer system~~ of claim 6, wherein the aggressor net in the third set becomes part of the worst case aggressor set.

8. (Currently Amended) The <u>method</u> ~~computer system~~ of claim 5, further comprising ~~instructions for~~:

    > reducing each of the plurality of logically exclusive sets to a second plurality of logically exclusive sets such that a net in a set of the second plurality of logically exclusive sets is part of the second set.

9. (Currently Amended) The <u>method</u> ~~computer system~~ of claim 8, wherein an empty set in the second plurality of logically exclusive sets is removed from the second plurality of logically exclusive sets.

10. (Currently Amended) The <u>method</u> ~~computer system~~ of claim 8, further ~~solving the problem comprising instructions for~~:

    > using a first representation to represent a net in the second set;
    > using a second representation to represent a set in the second plurality of logically exclusive sets; and
    > creating an association between the first representation and the second representation when the net is part of the set.

11. (Currently Amended) The <u>method</u> ~~computer system~~ of claim 10, wherein the first representation is a first node, and wherein the second representation is a second node.

12. (Currently Amended) The <u>method</u> ~~computer system~~ of claim 10, wherein the association is an edge.

13. (Currently Amended) The <u>method</u> ~~computer system~~ of claim 10, further comprising ~~instructions for~~:

    selecting the second representation;

    selecting an adjacent net of the second representation such that the adjacent net has ~~a weight greater than another adjacent net of the first representation~~ <u>the greatest weight in the second representation</u>;

    adding the adjacent net to the worst case aggressor set;

    removing an association of the second representation;

    removing the second representation;

    removing an association of the adjacent net;

    removing the adjacent net; and

    returning the worst case aggressor set when there are no representations of the sets of the second plurality of logically exclusive sets remaining ~~in the problem~~.

14. (Cancelled)

15. (Cancelled)

16. (Currently Amended) A software tool that finds a worst case aggressor set of a victim net, comprising:

    a processor;

    a memory; and

    software instructions residing in the memory and executable in the processor for performing a series of operations to find <u>the</u> [[a]] worst case aggressor [[net]] <u>set</u> based on a plurality of logically exclusive sets <u>of nets,</u>

wherein at most one net in each of the plurality of logically exclusive sets switches at a given time.

17. (Previously Presented) The software tool of claim 16, wherein the plurality of logically exclusive sets comprises a mutually exclusive set, and wherein the mutually exclusive set comprises a signal net.

18. (Currently Amended) The software tool of claim 16, ~~further~~ the software instructions comprising:

a portion that forms a first set, wherein the first set ~~comprise~~ comprises an aggressor net of the victim net;

another portion that forms a second set, wherein the second set comprises an aggressor net that is part of the first set and that is part of the plurality of logically exclusive sets;

another portion that forms a third set, wherein the third set comprises an aggressor net that is part of the first set but is not part of the second set;

another portion that reduces the plurality of logically exclusive sets to a second plurality of logically exclusive sets such that a net in a set of the second plurality of logically exclusive sets is part of the second set; and

another portion that formulates a problem based on the second set and the second plurality of logically exclusive sets.

19. (Previously Presented) The software tool of claim 18, wherein the problem is represented graphically.

20. (Previously Presented) The software tool of claim 19, wherein the graphical representation is a bipartite graph.

21. (Previously Presented) The software tool of claim 18, wherein the aggressor net in the first set has a corresponding weight.

22. (Previously Presented) The software tool of claim 18, wherein the worst case aggressor set comprises an aggressor net in the third set.

23. (Previously Presented) The software tool of claim 18, wherein an empty set in the second plurality of logically exclusive sets is removed from the second plurality of logically exclusive sets.

24. (Previously Presented) The software tool of claim 18, the problem comprising:
   a portion that uses a first representation to represent a net in the second set;
   another portion that uses a second representation to represent a set in the second plurality of logically exclusive sets; and
   another portion that creates an association between the first representation and the second representation when the net is part of the set.

25. (Currently Amended) The software tool of claim 24, wherein solving the problem determines the worst case aggressor [[net]] set, the software tool further comprising:
   a portion that selects a set in the second plurality of logically exclusive sets;
   another portion that selects an adjacent net of the set such that the adjacent net has [[a]] ~~weight greater than another adjacent net of the set~~ the greatest weight in the set;
   another portion that adds the adjacent net to the worst case aggressor set;
   another portion that removes an association of the set;
   another portion that removes the set;
   another portion that removes an association of the adjacent net;
   another portion that removes the adjacent net; and
   another portion that returns the worst case aggressor set when there are no sets of the second plurality of logically exclusive sets remaining.

26-31. (Cancelled)

32. (Currently Amended) A software tool, comprising:
   a processor;
   a memory; and
   software instructions residing in the memory and executable in the processor for performing a series of operations for solving a problem to find a worst case aggressor net based on a plurality of logically exclusive sets,

wherein at most one aggressor net in each of the plurality of logically exclusive sets switches at a given time.

33. (Previously Presented) The software tool of claim 32, further comprising:

a portion that uses a first representation to represent the logically exclusive set;

another portion that selects the first representation;

another portion that selects a second representation, wherein the second representation represents an adjacent net of the first representation;

another portion that removes an association of the first representation;

another portion that removes the first representation;

another portion that removes an association of the second representation;

another portion that removes the second representation; and

another portion that returns the adjacent net represented by the second representation as the worst case aggressor net.

34. (Currently Amended) The software tool of claim 33, wherein the adjacent net represented by the second representation has the greatest weight of all the nets a weight greater than another net in the problem.

35. (Previously Presented) The software tool of claim 32, wherein the problem is represented graphically.

36. (Previously Presented) The software tool of claim 35, wherein the graphical representation is a bipartite graph.

37-39. (Cancelled)

40. (Currently Amended) A software tool, comprising:

a processor;

a memory; and

software instructions residing in the memory and executable in the processor for performing a series of operations for formulating a problem to find a worst case aggressor net of a victim net based on a plurality of logically exclusive [[set]] sets, wherein at most one aggressor net in each of the plurality of logically exclusive sets switches at a given time.

41. (Previously Presented) The software tool of claim 40, further comprising:

      a portion that uses a first representation to represent a net, wherein the net is an aggressor net of the victim net and is part of the logically exclusive set;

      another portion that uses a second representation to represent a set, wherein the set is the logically exclusive set; and

      another portion that selectively creates an association between the first representation and the second representation when the net is part of the set.